

The Identity Theory

In general, the identity theory holds that mental states/events/kinds are *identical* to (or reducible to) neurophysiological states/events/kinds.

I. Motivation

There are systematic and pervasive psycho-neural correlations.

Brain Damage

Damage to Broca's area in the brain results in linguistic impairment.

Drugs

Nicotine, valium, vicadin, marijuana, ecstasy, and alcohol
... and their characteristic mental effects

Perception

Irradiation of the retina with particular wavelengths of light results in visual perceptions as of certain colors.

Perturbations in sound waves impact the ear and result in auditory perceptions with characteristic qualities.

Anesthesia

... gives reason to think that the peripheral effects on the nervous system are only remote causes of certain mental states -- that anesthesia works suggests that the locus of mental activity is in the brain.

II. Mind/Brain Correlation

Mind-Brain Correlation Thesis: For each M-state type that occurs to an organism O there exists a B-state type such that O is in M (at time t) if and only if O is in B (at time t).

These correlations are *lawlike*. They are non-accidental generalizations that support counter-factual cases.

-- If Jonny were to ingest LSD and get into brain state B, then he would hallucinate.

They embody a *supervenience* relationship. The Gs supervene on the Fs just in case there could be no difference in a G-state without some underpinning change in an F-state.

- Supervenience underwrites the intuition that your psychology survives a molecule-by-molecule teleportation
- Jonny's plan to watch the Tottenham game is scrapped only if there is some change in his underlying neurophysiology.

III. What kind of relation?

On the face of it, various mind-brain relations support lawlike generalizations or supervenience. But what, precisely, is the relation between mental states and brain states?

some candidates

Causal: M-state token m causes(/is caused by) B-state token b .

Common cause: M-state token m and B-state token b are both effects of some preceding causal token C .

Dual-aspect: One underlying stuff or type of state with two different modes, a mental mode and a physical mode.

Identical: M-state token m just is B-state token b ; or the stronger claim: M-properties are identical to B-properties.

IV. J.J.C Smart's argument

Smart: In light of the M-B correlation thesis, considerations of simplicity favor the identity theory.

A. Occam's razor

OR_{entities}: For a given set of data d , if theory T1 accounts for d while positing n entities and theory T2 accounts for d while positing m ($> n$) entities, then we should prefer T1 over T2.

OR_{assump}: For a given set of data d , if theory T1 accounts for d with fewer (or less complicated) assumptions than theory T2, then we should prefer T1 over T2.

examples of things ruled out by OR_{entities}:

- humors
- cholerick fluid
- witches/"demonic" possession

examples of hypotheses ruled out by OR_{assump}:

- a deity created the world 5-minutes ago with all our apparent-memories intact
- astrological relations explain personality differences

B. Nomological Dangers

Suppose we observe that there is an F event when and only when there is a G event, so that for all x, $Fx \text{ iff } Gx$. We want to know why it is true that the Fs are invariably accompanied by the Gs: what fact about the natural world grounds this tight relation? On the face of it, there are three options. We can

- take the correlation as a primitive fact (e.g. why Planck's constant has the value that it does, or why the speed of light = c).
- try to explain the correlation in terms of a lower level science (e.g. that a plant's exposure to sunlight is accompanied by growth is explained in terms of photosynthesis; *botany in terms of chemistry*)
- do away with the need to explain the correlation by identifying the Fs with the Gs (e.g. identifying lightning with electromagnetic discharge)

C. From Nomological Dangers to Identity

- (1) Suppose we learn that a human is in Pain when and only when she is in brain state B -- that $Px \text{ iff } Bx$.
- (2) We can account for this lawful correlation by either taking it as brute fact, explaining it in terms of a lower level science, or by identifying pain-states with B-states.
- (3) If $(Px \text{ iff } Bx)$ is a fundamental fact about the world, then there will be an infinite number of such mental-physical facts, one for each (e.g.) belief -- and that is ludicrous.
- (4) Explaining $(Px \text{ iff } Bx)$ in terms of a lower-level science (without identifying them) does not help, as we will still have to posit correlations between Pain-states and some other, say, chemical state, and that lands us back with the problem in (3).
- (5) So, we can do away with the need to explain the $Px \text{ iff } Bx$ regularity by identifying P-states with B-states.

V. Two Explanatory Arguments

1): Identities help us explain mind-brain correlations.

α : Pain = C-fibers firing. (explanans)
Thus, pain occurs iff C-fibers firing occurs. (explanandum)

or a generalized version,

β : Mental states $M1...Mn$ are identical with brain states $B1...Bn$
Thus, mental states $M1...Mn$ occur iff brain states $B1...Bn$ occur.

Kim's response: The explanatory value of the identity is dubious; we need no research to know that C-fibers fire iff C-fibers fire.

2) Identities help us explain facts that would otherwise go unexplained (Block/Stalnaker¹)

- i. Neuro-physical laws
- ii. C-fibers-firing cause brain state B.
- iii. Pain = Cfs.
- iv. Distress = brain state B.
- v. Thus, pain causes distress.

Kim: But the conclusion is a mere rewrite of premise ii. iii and iv just help us pick out the same causal fact using neuroscientific and folk-psychological vocabulary.

VI. Type identity vs Token identity

Type-identity theory: Each mental state type is identical to (or reducible to) a physical state type.

Token-identity theory: Each mental state token is identical to some physical state token.

Illustration of types and tokens:

A A B C B C

If counting by letter types, there are 3; if counting by letter tokens, there are 6 .

Tokens are concrete non-repeatable events with spatio-temporal extension. *Types* are best thought of as abstract entities like properties, which are instantiated in token instances.

For example, the type-identity theorist holds that the mental state type, *Pain*, is identical to a brain state type, *C-fibers firing*. Every token pain is a token C-fiber firing because pain in general just is the firing of C-fibers.

The token-identity theorist holds that every token pain is identical to some physical state or other. Each non-repeatable pain event is a physical event (but not necessarily an event of C-fibers firing).

¹ "If we believe that heat is correlated with but not identical to molecular kinetic energy, we should regard as legitimate the question why the correlation exists and what its mechanism is. But once we realize that heat is molecular kinetic energy, questions like this will be seen to be wrong-headed" (Block and Stalnaker 1999).